Gateway

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The ARRL Packet-Radio Newsletter

HAPN-1 SOFTWARE ENHANCED

The HAPN-1 packet-radio adapter software has a fresh look! The long-awaited multiconnection software is now available, the AX.25 software package has been extensively rewritten and new programs have been added to the library. [HAPN-1 is a hardware and software package developed by the Hamilton (Ontario) Area Packet Network (HAPN) for the IBM PC and its clones that consists of a TNC on a PC card that is installed in a computer expansion slot and a variety of software to support the hardware.]

Software Reorganization

The AX.25 Level 1 functions have been broken out of the m25 program and placed in a device driver. The device driver, hapn1.sys, is loaded from your config.sys file and becomes part of DOS. It manages all of the hardware functions associated with the HAPN-1 hardware. This greatly simplifies m25 and makes it possible to extend it to support new features such as multiconnections. In addition, the device driver is similar to a TNC running KISS code, which makes it suitable for use by other applications that already contain Level 2 functions, such as TCP/IP.

Multiconnect

M25 can be customized to provide one to four concurrent connections or sessions (HAPN has found that two or three sessions are sufficient for most users; fewer sessions means that m25 uses less memory). In addition to the connected sessions, there is one special session called the monitor session that is active all of the time. It permits you to monitor the channel even when connected.

The c25 program supports multiple sessions by allowing you to switch from one session to the next by pressing a function key. Information about the session, such as session identification and the connected station's call sign, are provided for each session, making the use of multiple connections very simple and easy to use. File transmission and reception operates in all sessions as do the file transfer utility programs.

A new "calls heard" dialog is now available in c25. It displays the last ten different call signs heard in the monitor session with the time when they were last heard.

New Applications

The Bulletin Board and Utilities diskettes now contains XPacket and YAPP file transfer programs, in addition to the old sf/rf programs. These new programs are compatible with PBBSs that support these protocols making it much easier to exchange files with them.

There is also a weather facsimile program for receiving WEFAX images from various sources on HF and displaying them on your PC. All that is required is that you apply the received audio from your HF receiver to the HAPN-1 and tune in one of the WEFAX transmissions on HF. No hardware changes are required.

HAPN also provides a NET/ROM utility called SIGNON for remotely accessing and updating parameters in the node. The program automatically performs the password sign-on procedure for NET/ROM SYSOPs. After the sign-on procedure, changing parameters is done by an editor showing the formatted parameters. Non-SYSOPs cannot change the parameters, but are still able to browse through them and learn more about the network. Formatted setups can be printed or saved to disk.

TCP/IP

A version of the TCP/IP program NET.EXE is available from HAPN that supports HAPN-1 using the new device driver hapn1.sys. This version is very reliable and overcomes all the HAPN-1 problems users were having with the released version of NET.EXE.

Incompatibility With MSYS Multi-User PBBS

An incompatibility between the HAPN-1 software and the MSYS PBBS exists. The symptom is the uncontrolled display of headers when an MSYS frame is received. This occurs because MSYS transmits incorrect SSID bytes in the AX.25 header. Most TNCs have been programmed to ignore the unused bits and function normally, however, the HAPN-1 software expects the bits to be set according to the protocol and malfunctions when incorrect frames are encountered. This problem has been fixed in the current release of the software.

Software Availability

Registered HAPN-1 owners can order software updates for $5 US per diskette. The base AX.25 package, formerly Diskette #1, now requires two diskettes instead of one. The new programs described in this newsletter are on the Utilities diskette.

The new software updates are available as follows:

HAPN-1 AX.25 programs and documentation (2 disks) $10
HAPN-1 AX.25 PBBS .....$ 5
HAPN-1 AX.25 Utilities .....$ 5
HAPN-1 TCP/IP .....$ 5

Please include $5 per order for shipping. Send orders to:

HAPN
Box 4466
Station D
Hamilton, Ontario
Canada L8V 4S7

KANTRONICS RF MODEM COMING SOON

Kantronics, is expected to introduce an inexpensive 2-meter 9600-baud transceiver and TNC combo shortly. Dubbed the "DVR-2," the unit combines a 2-watt, 2-channel, crystal-controlled 2-meter transceiver with a TNC and a 9600-baud modem, all for under $200.

REPEATER DIRECTORY DEADLINE APPROACHES

The deadline for the 1990-1991 edition of the ARRL *Repeater Directory* is approaching, so, if you would like your 24-hour packet-radio system included in the next edition, please submit information about your system(s) in the following format soon.

STATE/PROVINCE

LOCATION: city, town, hill, etc

FREQUENCY: include frequency offset for full-duplex repeaters and include each frequency used for multiport operations

CALL SIGN

NOTES: include system type (digipeater, gateway, PBBS, node, switch, other), coverage area (radius in miles) and links (if you are a single-hop link between two or more systems, please list them)

SPONSOR: club name or individual call sign

SOURCE: source of this information

Please submit the information to:

ARRL
Repeater Directory Editor
225 Main St
Newington, CT 06111

Organizations with multiple listings are invited to submit data on MS-DOS 5-1/4-inch diskettes.

Due to the great number of possible responses, this information will be used to determine the major systems. Only major systems will be listed in the directory.

8th ARRL COMPUTER NETWORKING CONFERENCE

The 8th ARRL Computer Networking conference will be in Colorado Springs, Colorado, on October 7 at the US Air Force Academy. This year's hosts include: Tucson Amateur Packet Radio (TAPR), Academy Amateur Radio Club, USAFA Cadet Radio Club, Rocky Mountain Packet Radio Association (RMPRA) and the American Radio Relay League (ARRL). Numerous papers on TCP/IP and ROSE Networking have been received for this year's conference. This year's presentations will continue the story of amateur packet radio and AMTOR evolution. This is one conference you don't want to miss. It's not too late to send in your reservation. Contact Lori Weinberg at ARRL or TAPR President Andy Freeborn, NØCCZ, at 719-598-8373 for more information.

Conference proceedings will be available at the Conference, or directly from ARRL HQ after the Conference. Cost is $12.00 plus $2.50 for shipping and handling. Papers contained in this year's edition are:

A Packet Broadcast Protocol, by J. Gordon Beattie, Jr., N2DSY

License-Free Spread Spectrum Packet Radio, by Albert G. Broscius, N3FCT

The Implications of High-Speed RF Networking, by Mike Chepponis, K3MC, Glenn Elmore, N6GN, Bdale Garbee, N3EUA, Phil Karn, KA9Q, and Kevin Rowett, N6RCE

Local Distribution in the Amateur Radio Environment, by F. Davoli, A. Giordano, I1TD, and S. Zappatore, IW1PTR

Implementation of a 1 Mbps Packet Data Link, by Glenn Elmore, N6GN and Kevin Rowett, N6RCE

A Personal Packet Radio Mailbox Using Roserver, by Andrew Funk, KB7UV

Design of a Next-Generation Packet Network, by Bdale Garbee, N3EUA

RADIOSERVER - A Package for TNC Access to a LAN in a UNIX System, by A. Giordano, I1TD and S. Zappatore, IW1PTR

A Study of High Speed Packet Radio, by Roy E. Gould, N5RG

Prioritized Acknowledgement (PRIACK) Protocol, by Eric Gustafson, N7CL

Routing, Oh Where is My International Routing, by William C. Hast, TI3DJT

KA9Q Internet Protocol Package on the Apple Macintosh, by Dewayne Hendricks, WA8DZP and Doug Thom, N6OYU

Protocol Level 8 or What About the User?, by Lyle Johnson, WA7GXD

Thoughts on an Adaptive Link Level Protocol, by Lyle Johnson, WA7GXD

Tucson Amateur Packet Radio packetRADIO Project, by Greg Jones, WD5IVD

Amateur TCP/IP in 1989, by Phil Karn, KA9Q

OSI Services on TCP/IP Networks, by Anders Klemets, SMØRGV and Stephen Pink, KF1Y

ATS-3 Packet Experiments: The Potential Impact of Packet Radio upon Pacific Basin Communications, by Gerald A. Knezek, KB5EWV and Greg Jones, WD5IVD

ARES/Data UPDATE: A Packet Radio Batabase for Emergency Communications with Conference Bridge, by W.E. Moerner, WN6I, Sharon Moerner, N6MWD, and David Palmer, N6KL

ROSE X.25 Network Growth, by Thomas A. Moulton, W2VY

The ROSE X.25 Packet Switch, by Thomas A. Moulton, W2VY

Using the ROSE X.25 Packet Network, by Thomas A. Moulton, W2VY

AMTEX - NAVTEX-Like Dissemination Procedures for Amateur Radio, by Paul Newland, AD7I

A Multi-Channel IBM PC Packet Interface, by Henk Peek, PAØHZP

Design and Implementation of an AppleTalk Local Area Network Bridge, by R. Ramsey and W. Kinsner, VE4WK

DAMA - A New Method of Handling Packets?, by Detlef J. Schmidt, DK4EG

Application Software for Packet Radio, by Robert Taylor, KA6NAN and Dewayne Hendricks, WA8DZP

Callsign Server for the KA9Q Internet Protocol Package, by Douglas Thom, N6OYU and Dewayne Hendricks, WA8DZP

A Brief Report on the Implementation of ROSE Networking, by Barry E. White, VK2AAB

MICROSAT THERMAL TESTING

All four of the AMSAT MICROSAT satellites were received at the Martin-Marietta Space Simulation Laboratory (SSL) building where they underwent the very important thermal vacuum chamber test. This test creates a space-like environment. Each Microsat (PACSAT, LUSAT, DOVE and WEBERSAT) was carefully mounted onto a special fixture designed to slide into the test chamber, after which the entire fixture was rolled into the 5- by 10-foot chamber. Once inside, Bob McGwier, N4HY, was "inserted" (very carefully, holding his body rigid so as not to touch any part of the Microsats) into the test chamber to complete the task of connecting the RF, power and data cables to a feedthrough connector, which enabled the AMSAT Team to test the equipment without losing chamber pressure. After cabling, the chamber was checked for leaks; then the door was closed and sealed.

The first part of the test was to wait for the chamber to be evacuated to the same pressure that a spacecraft would feel in space. Once chamber pressure was reduced to 10^{-6} torr, the Martin-Marietta technicians proceeded to raise the chamber temperature to +45 degrees C. At this temperature, each Microsat underwent a complete 12-hour functional checkout. This "hot-dwell" period allowed for outgassing to collect on the "cold plate". Out-gassing is a phenomena similar to what you'd see when a soda can is first opened. In a vacuum, most electrical components will experience outgassing of material and that material is collected on a metal plate (the cold plate) to prevent residue from adhering to the spacecraft. After thermal vacuum testing, the cold plate is chemically analyzed to determine where the residue originated. After 48 hours of thermal vacuum testing, all Microsats were functioning perfectly.

The Microsats continued through an 18-hour cold-dwell where the temperature is brought from -15 to -25 degrees C. Some problem did occur during testing (reluctant receiver channel and sticky CPU resets) and were corrected after removal from the thermal vacuum testing chamber. The Microsats were returned to Boulder for inspection and to be prepared for vibration tests which took place earlier this week. From there, they will return to Boulder for their September 25 trip to Kourou, French Guiana where the Microsats are scheduled for launch on November 10.

from AMSAT News Service Bulletin

GATEWAY CONTRIBUTIONS

Submissions for publication in *Gateway* are welcome. You may submit material via the US mail to:

Gateway
Stan Horzepa, WA1LOU
75 Kreger Drive
Wolcott, CT 06716-2702

or electronically, via CompuServe to user ID 70645,247 or via Internet to 70645.247@compuserve.com. Via telephone, your editor can be reached on evenings and weekends at 203-879-1348 and he can switch a modem on line to receive text at 300, 1200 or 2400 bit/s. (Personal messages may be sent to your *Gateway* editor via packet radio to: WA1LOU @ W1AW.)

The deadline for each issue of *Gateway* is the Saturday preceding the issue date (which is typically a Friday).

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Stan Horzepa, WA1LOU
Editor

Larry E. Price, W4RA
President

David Sumner, K1ZZ
Executive Vice President

Sal Prado
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